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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Tsukasa Yagi

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EXAMINER

NGUYEN, HOAN C

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 01/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/891,997

Applicant(s)

YAGI ET AL.

Examiner

HOAN C. NGUYEN

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) 6-26 and 30-43 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, -29 and 44-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

Applicant's arguments with respect to the amended claims 1, 47 and new claim 48 based on the Response filed on 11/07/2005 have been considered but are moot in view of the new ground(s) of rejection. Therefore, this is Final action.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claim 48 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The new claim 48 cites two contradictory features:

- image data **to display the pixels** on the row of the matrix corresponding to the selected scanning electrode (lines 19-20),
- while each of the first scanning electrodes is selected, the pixels corresponding to the selected first scanning electrodes are not display (lines 21-22). However, applicant also fails to point out that where in specification this feature discloses.

Examiner will interpret as “while each of the first scanning electrodes is selected, the pixels corresponding to the selected first scanning electrodes display” as same scope as lines 19-20.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-5, 29 and 44-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamagishi (US4920409A) in view of Tsuboyama et al. (US5734367) and Masazumi (US6414669B1).

In regard to claims 1 and 47-48, Yamagishi discloses (Fig. 1) all features in claims 1-3 and 47 except for inversely arrangement of the scanning and signal lines. Here, scanning electrodes (C1-C3) are interchanged with signal electrodes (R1-R7) in reference of Yamagishi for vertical and horizontal choices. In another words, scanning electrodes C1-C3 can be renamed to be signal electrodes and signal electrodes R1-R7 can be renamed to be scanning electrodes. The renamed electrodes will not change any property of display. [as discussed in Office Action mailed on 9/23/04, 4/20/2004 and 5/2/2005].

Therefore, a liquid crystal display apparatus comprising:

- a liquid crystal layer comprising liquid crystal and having a plurality of pixels, where scanning electrodes cross the signal electrodes, arranged in a matrix composed of rows and columns;
- a number of first scanning electrodes Y1-Y7 according to electrode R1-R7 aligned in a first direction at a first pitch (between Y_i and Y_j, where i and j = 1-7),

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the number of the first scanning electrodes corresponding to a number of rows and each of the first scanning electrodes extending in a second direction substantially orthogonal to the first direction (y-direction);

- a plurality of signal electrodes X1-X3 according to electrode C1-C3 facing the first scanning electrodes with the liquid crystal layer sandwiched between the signal electrodes and the first scanning electrodes, the signal electrodes being aligned in the second direction (X-direction) at a second pitch (between X_m and X_n , where n and m = 1-3) wider than the first pitch and each of the signal electrodes extending in the first direction.
- a scanning electrode driver connected to the first scanning electrodes;
- a signal electrode driver connected to the signal electrode;

Claim 2:

- pixels are formed at intersections of the first scanning electrodes and the signal electrodes; and each of the pixels is a rectangle of which shorter sides are parallel to the first direction and of which longer sides are parallel to the second direction.

Claim 3:

- a width of each of the first scanning electrodes defines a length of the shorter sides of each of the pixels; and a width of each of the signal electrodes defines a length of the longer sides of each of the pixels.

Claim 4-5:

- the first pitch is $1/n$ of the second pitch, wherein n is 2.

Claim 44:

- all of pixels can display a same color for reducing cost due to less expensive for one color display than for three color display.

However, Yamagishi fails to disclose a liquid crystal display apparatus with (a) the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound and a chiral agent; (b) a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode (claims 1 and 45-47).

Tsuboyama et al. teach (Fig. 1, col. 3 lines 28-63) a liquid crystal display apparatus with a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode for providing good image with less flickering.

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Masazumi teaches a liquid crystal display apparatus comprising the liquid crystal having a memory effect wherein the liquid crystal exhibits a cholesteric phase and comprises a nematic liquid crystal compound and a chiral agent (claim 29) retaining the display states of the liquid crystals if the deselect signal is held below the prescribed threshold voltage.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to rearrange the scanning and signal lines for designed choice of vertical and horizontal images, since it has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70; wherein (a) a controller for controlling the scanning electrode driver and the scanning electrode driver such that the scanning electrode driver selects the first scanning electrodes in a specified order by outputting a selective signal to each of the first scanning electrodes and the signal electrode driver outputs signals to the plurality of signal electrodes in accordance with image data to display the pixels on the row of the matrix corresponding to the selected scanning electrode for providing good image with less flickering, thereby making the brightness change unnoticeable to human eyes as taught by Tsuboyama et al. (col. 3 lines 57-63); (b) the liquid crystal having a memory effect (claim 27) wherein the liquid crystal exhibits a cholesteric phase and comprises a nematic liquid crystal compound and a chiral agent retaining the display states of the liquid crystals if the deselect signal is held below the prescribed threshold voltage for achieving a further reduction in driving time as taught by Masazumi (col. 2 lines 33-34).

Response to Arguments

Applicant's arguments filed on 11/07/2005 have been fully considered but they are not persuasive.

Applicant's ONLY arguments are follows:

- A. Yamagishi discloses the pitch of the scanning electrodes is greater than that of the signal electrodes, the opposite of that required by claim 1.
- B. Yamagishi's full-color liquid crystal display would not be combined with Tsuboyama's black and white display drivers by one of skill in the art.
- C. Masazumi discloses in Fig. 4 a scanning and signal electrode arrangement having equal pitch, in contrast to claim 1 that requires that the pitches not be equal.

Examiner's responses to Applicants' ONLY arguments are follows:

- A. Due to interchanging between scanning lines and signal lines, Yamagishi discloses the pitch (X1 to X2) of the signal electrodes C1-C3 is greater than the pitch (Y1 to Y2) of the scanning electrodes R1-R7 as required by claim 1.
- B. A controller has a same effect in used for color display or black-white display. Besides, the controller in Tsuboyama is providing good image with less flickering in both color and black-white display. The good image does not depend on the color or non-color display. Therefore, the combination is proper.
- C. The kind of liquid crystal materials can use for all types of shape and arrangement of electrodes. Masazumi discloses the liquid crystal having a memory effect, exhibiting a cholesteric phase and comprising a nematic liquid crystal compound

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and a chiral agent for reducing threshold characteristics and driving time. Reduction of threshold characteristics and driving time do not relate to the electrode arrangement or shape. Therefore, the combination is proper.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HOAN C. NGUYEN whose telephone number is (571) 272-2296. The examiner can normally be reached on MONDAY-THURSDAY:8:00AM-4:30PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kim H. Robert can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HOAN C. NGUYEN
Examiner
Art Unit 2871

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ANDREW SCHECHTER
PRIMARY EXAMINER